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| EXAMINER | |
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| NASH, LASHANYA RENEE | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| *Office Action Summary* | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/620,258 | KUMAR ET AL. | |
| | Examiner | Art Unit | |
| | LASHANYA R. NASH | 2153 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

This Office is in response to the amendment filed 11 February 2008. Claims 1-17 are presented for further consideration.

### *Specification*

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: no antecedent basis provided for the article of manufacture or storage medium recited in claim 17.

### *Response to Arguments*

Applicant's arguments, see remarks, filed 11 February 2008, with respect to the rejection of claims 6, 12 and 13 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new grounds of rejection is made in view of a newly found reference Bae et al., "Survey of Traffic Control Schemes and Protocols in ATM Networks", as set for below in the Office action.

Applicant's arguments filed 11 February 2008 have been fully considered but they are not persuasive.

In considering Applicant's arguments, the following remarks are noted:

(I) Applicant contends that St. Hontas fails to teach determination of whether or not to generate a traffic burst for a given time interval based on an amount of traffic of a different type that was generated over one or more previous time intervals.

(II) Applicant contends that the combination of Smith and St. Hontas so as to reach the limitations of claim 1, one would not have been motivated to have done so in light of an explicit teaching away from the proposed combination.

(III) Applicant contends that Smith fails to teach the determining whether or not the to generate a traffic burst for a given time interval based on an amount of traffic of a different type that was accumulated over a one or more previous time intervals.

(IV) Applicant contends that Smith fails to teach or suggest any comparison of an amount of traffic to a comparison level, much less limitations directed to adding compensatory traffic to a burst container.

In considering (I), Applicant contends that St. Hontas fails to teach determination of whether or not to generate a traffic burst for a given time interval based on an amount of traffic of a different type that was generated over one or more previous time intervals. Applicant further suggests that St. Hontas teaches away from the aforementioned features (Remarks, page 2). Examiner respectfully disagrees. Examiner asserts that although St. Hontas discloses a technique wherein each of the silence duration, inter-

cell distance, and number of cells is “drawn from its own histogram, independently from each other and from cycle to cycle” as referenced by Applicant, the reference expressly discloses an alternate embodiment wherein dependencies between a burst and the following silence, or rather an autocorrelation between bursts from cycle to cycle are implemented. Therefore, it is evident this auto correlative dependence of generated burst and silence traffic, as disclosed by St. Hontas, expressly teaches that a determination of burst generated for a time interval, or cycle, is based on traffic generated on previous time intervals. Examiner also asserts that this implementation is clearly taught by the reference, regardless of the other disclosed techniques which are not considered preferable to or superior to the autocorrelation technique. Furthermore, the prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed and therefore St. Hontas does not teach away from the aforementioned technique.

In considering (II), Applicant contends that the combination of Smith and St. Hontas so as to reach the limitations of claim 1, one would not have been motivated to have done so in light of an explicit teaching away from the proposed combination. Examiner respectfully disagrees. Examiner asserts that although Smith discloses examples and preferred embodiments employed in order to simulate the bursty nature of ATM traffic, this disclosure does not constitute a teaching away from a broader disclosure or non-preferred embodiment of an autoregressive model which is evidently

a well-known modeling technique for an ATM environment. Furthermore, it is important to note that Smith expressly discloses that the autoregressive model has been known to be successful in certain packet-based environments, like ATM (Smith column 1, lines 57-64). Therefore, in response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case one of ordinary skill in the art would have been so motivated to accordingly modify the method of Smith, so as to provide flexibility to emulate a wide range of ATM traffic profiles (St. Hontas, Abstract).

In considering (III), Applicant contends that Smith fails to teach determining whether or not the to generate a traffic burst for a given time interval based on an amount of traffic of a different type that was accumulated over a one or more previous time intervals. Specifically, Applicant contends that Smith teaches that a user can assign percentages to particular traffic types, <u>but the percentages do not involve determining whether or not to generate a traffic burst for a given time interval based on an amount of traffic of a different type that was accumulated over one or more previous time intervals</u>. Moreover, Applicant contends that Smith fails to cure the deficiencies of

St. Hontas regarding the aforementioned determination of bursts based on traffic generated over previous time intervals. Examiner respectfully disagrees. Examiner asserts that the combination of Smith and St. Hontas effectively teaches these features. As previously discussed in (I) and (II) above, St. Hontas evidently discloses determining whether or not the traffic burst is generated for a given time interval is based on an amount of the first type of traffic generated over one or more previous time intervals (i.e. autocorrelation). Therefore, the known technique of assigning percentages of traffic types to the total number of packets accumulated in a time interval, as taught by Smith, combined with the autoregressive technique, as taught by St. Hontas, without substantial modifications to their respective functions would have yielded the predictable result's of Applicant's features.

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**Claims 1-5, 11 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, II (US Patent 7,013,255) in view of St. Hontas et al. ["ATM Traffic Generator Card. An Integrated Solution." -retrieved from IEEE], hereinafter referred to as Smith and St. Hontas respectively.**

In reference to claim 1, Smith discloses a method for simulating both burst and normal type traffic in a telecommunications network, (abstract; column 1, lines 25-65). Smith discloses:

- •A method (Figure 3) of generating data traffic in a traffic generator, the method comprising the steps of (column 6, lines 15-30):
- •Generating a first type of traffic (Figure 3-item 112) in accordance with a given distribution (i.e. normal distributed traffic; column 2, lines 10-30; column 2, lines 49-55); and
- •Generating a second type of traffic different than the first type of traffic (Figure 3-item 108 and Figure 3-item124), the second type of traffic comprising at least one traffic burst (i.e. Lognormal distributed traffic; column 2, lines 32-48);
- •Wherein the traffic burst is generated based at least in part on an amount of the first type of traffic generated over one or more time intervals (i.e. bimodal distributed traffic; column 3, lines 24-45; column6, lines 30-45; Figure3-item 132).

However, the reference fails to show the method wherein a determination as to whether or not the traffic burst is generated for a given time interval is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals. Nonetheless, this was a well-known feature in the art at the time of the invention, as further evidenced by St. Hontas. It would have been obvious to accordingly modify the method of Smith, for one of ordinary skill in the art at the time of time invention.

In an analogous art, St. Hontas discloses an ATM traffic generator for generating constant-bit-rate and bursty traffic streams, *(1. Introduction;* page 1). St. Hontas discloses a method for generating burst traffic, wherein a determination as to whether or not the traffic burst is generated for a given time interval (i.e. burst interval or silence interval; *3.Source model of the Generator,* page 2) is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals (i.e. dependencies between a burst and the following silence, or autocorrelative laws between bursts from cycle to cycle; *4.1.1 The core software part;* page 3; Figure 1). One of ordinary skill in the art would have been so motivated to accordingly modify the method of Smith, so as to provide flexibility to emulate a wide range of ATM traffic profiles (St. Hontas, Abstract).

In reference to claims 16 and 14, Smith discloses a method for simulating both burst and normal type traffic in a telecommunications network, (abstract; column 1, lines 25-65). Smith discloses:

- An apparatus (i.e. generator; Figure 2) for generating data traffic in a traffic generator, the device implementing a traffic generator operative (column 5, lines 53-65; column 6, lines 15-30):
- To generate a first type of traffic (Figure 3-item 112) in accordance with a given distribution (i.e. normal distributed traffic; column 2, lines 10-30; column 2, lines 49-55); and

•To generate a second type of traffic different than the first type of traffic (Figure 3-item 108 and Figure 3-item124), the second type of traffic comprising at least one traffic burst (i.e. Lognormal distributed traffic; column 2, lines 32-48);

•Wherein the traffic burst is generated based at least in part on an amount of the first type of traffic generated over one or more time intervals (i.e. bimodal distributed traffic; column 3, lines 24-45; column6, lines 30-45; Figure3-item 132).

However, the reference fails to disclose that the aforementioned apparatus having a processor and a memory; and wherein a determination as to whether or not the traffic burst is generated for a given time interval is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals [claim 16]; and a hardware traffic generator [claim 14]. Nonetheless, these were well-known features in the art at the time of the invention, as further evidenced by St. Hontas. It would have been obvious to accordingly modify the teachings of Smith, for one of ordinary skill in the art at the time of the invention.

In an analogous art, St. Hontas discloses an ATM traffic generator for generating constant-bit-rate and bursty traffic streams, *(1. Introduction;* page 1). St. Hontas discloses a method for generating burst traffic, wherein a determination as to whether or not the traffic burst is generated for a given time interval (i.e. burst interval or silence interval; *3.Source model of the Generator;,* page 2) is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals (i.e. dependencies between a burst and the following silence, or autocorrelative laws

between bursts from cycle to cycle; *4.1.1 The core software part;* page 3; Figure 1). One of ordinary skill in the art would have been so motivated to accordingly modify the apparatus of Smith, so as to provide flexibility to emulate a wide range of ATM traffic profiles (St. Hontas, Abstract). Also, St. Hontas discloses that the aforementioned architecture comprises hardware traffic generator, specifically a processor and memory (Figure 4; *4.2 The hardware part;* pages 4-5). One of ordinary skill in the art would have been so motivated to implement the traffic generator as hardware so as to promote design flexibility thereby allowing the apparatus to inter-work with a real traffic source and emulate the traffic profile (St. Hontas; 2. *The main features of the generator;,* page 1-2).

In reference to claims 17 and 15, Smith discloses a method for simulating both burst and normal type traffic in a telecommunications network, (abstract; column 1, lines 25-65). Smith discloses:

- A method (Figure 3) of generating data traffic in a traffic generator, the method comprising the steps of (column 6, lines 15-30):
- Generating a first type of traffic (Figure 3-item 112) in accordance with a given distribution (i.e. normal distributed traffic; column 2, lines 10-30; column 2, lines 49-55); and
- Generating a second type of traffic different than the first type of traffic (Figure 3-item 108 and Figure 3-item124), the second type of traffic comprising at least one traffic burst (i.e. Lognormal distributed traffic; column 2, lines 32-48);

•Wherein the traffic burst is generated based at least in part on an amount of the first type of traffic generated over one or more time intervals (i.e. bimodal distributed traffic; column 3, lines 24-45; column6, lines 30-45; Figure3-item 132).

However, the reference fails to disclose that the aforementioned method implemented via an article of manufacture comprising a storage medium containing one or more software programs for use in generating data traffic in a traffic generator, wherein the one or more software programs when executed implement the method steps; and wherein a determination as to whether or not the traffic burst is generated for a given time interval is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals [claim 17]; and a software traffic generator [claim 15]. Nonetheless, these were well-known features in the art at the time of the invention, as further evidenced by St. Hontas. It would have been obvious to accordingly modify the teachings of Smith, for one of ordinary skill in the art at the time of the invention.

In an analogous art, St. Hontas discloses an ATM traffic generator for generating constant-bit-rate and bursty traffic streams, *(1. Introduction;* page 1). St. Hontas discloses a method for generating burst traffic, wherein a determination as to whether or not the traffic burst is generated for a given time interval (i.e. burst interval or silence interval; *3.Source model of the Generator,* page 2) is based at least in part on an amount of the first type of traffic generated over one or more previous time intervals (i.e. dependencies between a burst and the following silence, or autocorrelative laws

between bursts from cycle to cycle; *4.1.1 The core software part;* page 3; Figure 1). One of ordinary skill in the art would have been so motivated to accordingly modify the apparatus of Smith, so as to provide flexibility to emulate a wide range of ATM traffic profiles (St. Hontas, Abstract). Also, St. Hontas discloses that the aforementioned architecture comprises software traffic generator, specifically an article of manufacture comprising a storage medium containing one or more software programs for use in generating data traffic in a traffic generator, wherein the one or more software programs when executed implement the method steps (Figure 3; *4.1 The software part;* pages 3-4). One of ordinary skill in the art would have been so motivated to implement the traffic generator as software so as to promote design flexibility thereby allowing the apparatus to inter-work with a real traffic source and emulate the traffic profile (St. Hontas; *2. The main features of the generator,* page 1-2).

In reference to claim 2, Smith shows the method wherein the step of generating the second type of traffic further comprises accumulating traffic over one or more of the time intervals for which the first type of traffic is generated, and generating the traffic burst based at least in part on the accumulated traffic (i.e. percentage of the total number of packets in a specified time interval; column 6, lines 30-45).

In reference to claim 3, Smith shows the method wherein the first type of traffic comprises comparative traffic characteristic of non-burst traffic (i.e. column 2, lines 49-55; column 5, lines 53-65).

In reference to claim 4, Smith shows the method wherein the given distribution comprises a Poisson distribution (column 1, lines 35-45).

In reference to claim 5, Smith shows the method wherein the given distribution comprises a Gaussian distribution (column 5, lines 40-52).

In reference to claim 11, Smith shows the method wherein the one or more time intervals each comprise sample slot times (column 7, lines 20-38).

**Claims 6-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and St. Hontas, as applied to claim 1 above, and further in view of Bae et al. ["Survey of Traffic Control Schemes and Protocols in ATM Networks"-retrieved from IEEE].**

In reference to claim 6, Smith and St, Hontas disclose generating amounts of types of traffic in a traffic stream, for each of the one or more time intervals, based on a

capacity characterized by burst size (Smith; column 2, line 65-column 3, line 2). However, the references fail to expressly show the method wherein the step of generating the second type of traffic further comprises the step of determining, for each of the one or more time intervals, if an amount of the traffic of the first type generated during that interval is less than a comparison level, and if so adding an amount of compensatory traffic to a burst container having a capacity given by a burst size. Nonetheless, this would have been an obvious modification to the method of as further evidenced by Bae.

In an analogous art, Bae discloses a mechanism for modeling ATM network traffic (abstract). Bae further discloses determining, for each of the one or more time intervals, if an amount of the traffic of the first type generated during that interval is less than a comparison level (i.e. threshold value), and if so adding an amount of compensatory traffic to a burst container (i.e. buffer) having a capacity given by a burst size (i.e. adding cells to the queue until burst factor is reached; page 177, column 1, lines 18-column 2, line 8). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the known element of generating a second type of traffic for a traffic stream based on burst size, as taught by Smith and St. Hontas, with the known elements of adding traffic to a burst container having a capacity given by a burst size, as taught by Bae, without substantial modification to their respective functions, and the combination yielding the predictable result of generating the second type of traffic by determining if the amount of traffic is less than a comparison level and adding traffic to a burst container, of Applicant's invention.

In reference to claim 12, Smith and St. Hontas disclose generating a second type of traffic that further comprises generating a plurality of traffic bursts, the traffic based on a capacity characterized by burst size (Smith; column 2, line 65-column 3, line 2). However, the references fail to show wherein a given one of the traffic bursts is generated by: determining a current burst size and a current compensatory-accumulation size; creating an initially-empty burst container having a capacity that is equal to the burst size; adding compensatory traffic to the burst container whenever the total traffic of the first type generated within a given sample slot time is less than a comparison level, such that for each such addition of compensatory traffic, a level of traffic in the burst container increases by the compensatory-accumulation size; and generating the given traffic burst 'when the burst container level is greater than or equal to the burst size. However, the references fail to expressly show the method wherein the step of generating the second type of traffic further comprises the step of determining, for each of the one or more time intervals, if an amount of the traffic of the first type generated during that interval is less than a comparison level, and if so adding an amount of compensatory traffic to a burst container having a capacity given by a burst size. Nonetheless, this would have been an obvious modification to the method of as further evidenced by Bae.

In an analogous art, Bae discloses a mechanism for modeling ATM network traffic (abstract). Bae further discloses a given one of the traffic bursts is generated by: determining a current burst size and a current compensatory-accumulation size;

creating an initially-empty burst container having a capacity that is equal to the burst size (i.e. cell enters a queue; Figure 10); adding compensatory traffic to the burst container whenever the total traffic of the first type generated within a given sample slot time is less than a comparison level (i.e. threshold value), such that for each such addition of compensatory traffic, a level of traffic in the burst container increases by the compensatory-accumulation size; and generating the given traffic burst 'when the burst container level is greater than or equal to the burst size (i.e. burst factor/number of cells accumulated in a buffer during a burst; page 175, column 1, lines 31-47), (i.e. adding cells to the queue until burst factor is reached; page 177, column 1, lines 18-column 2, line 8). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the known element of generating a second type of traffic for a traffic stream based on burst size, as taught by Smith and St. Hontas, with the known elements of a mechanism employed for generating a traffic burst, as taught by Bae, without substantial modification to their respective functions, and the combination yielding the predictable result of generating the second type of traffic by generating a plurality of traffic bursts employing a burst container and burst size, of Applicant's invention.

In reference to claim 13, Smith and St. Hontas fail to expressly show the method wherein the traffic of the second type comprises a plurality of traffic bursts which are generated in a manner which tends to compensate for temporary reductions in the amount of traffic of the first type so as to substantially maintain a particular level of

traffic flow. Nonetheless, this would have been an obvious modification to the method as further evidenced by Bae.

In an analogous art, Bae discloses a mechanism for modeling ATM network traffic (abstract). Bae discloses ATM networks where the traffic of the second type comprises a plurality of traffic bursts which are generated in a manner which tends to compensate for temporary reductions in the amount of traffic of the first type so as to substantially maintain a particular level of traffic flow (i.e. traffic bursts are multiplexed to maintain constant levels; page 175, column 1, lines 30-58; page 176, column 1, lines 45-62). One of ordinary skill in the art would have been so motivated to accordingly modify the teachings of Smith and St. Hontas, so as to model the well known mechanism of statistical multiplexing of bursty ATM traffic sources to thereby gain efficiency (Bae; page 174, *III. Congestion Control in ATM Networks*, paragraph 1).

In reference to claim 7, Smith shows the method wherein the traffic burst is generated when a total amount of accumulated traffic in the burst container is greater than or equal to the burst size (i.e. the total number of data packets of this type; column 6, lines 46-57; column 2, line 55- column 3, line 2).

In reference to claim 8, Smith shows the method wherein the burst size is determined as a function of a mean burst size and a corresponding variation range, (column 6, lines 31-45).

In reference to claim 9, Smith shows the method of wherein the amount of compensatory traffic comprises an amount of traffic given by a compensatory-accumulation size (i.e. total number of values generated by each generator; column 6, line 58-column 7, line 3).

In reference to claim 10, Smith shows the method wherein the compensatory-accumulation size is determined as a function of a mean compensatory-accumulation size and a corresponding variation range (column 6, lines 31-45).

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LASHANYA R. NASH whose telephone number is (571)272-3957. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LaShanya R Nash/
Examiner, Art Unit 2153

/Glenton B. Burgess/
Supervisory Patent Examiner, Art Unit 2153